

## What is Claimed is:

1. A process of improving the quality of taste of a natural sweetener for mass production comprising the steps of:

5 a) providing a predetermined stevioside in aqueous solution having a predetermined concentration;

b) adding a predetermined substrate with a predetermined dextrose equivalent (DE) and a predetermined concentration to said stevioside, wherein the quantity of said stevioside and the substrate is capable of being added to define as predetermined reactants wherein said substrate is a  $\alpha$ -glucosyl sugar compound;

10 c) mixing said stevioside and said substrate thoroughly such that said substrate is completely dissolved to form a starting solution;

d) adding a predetermined transferase in a predetermined quantity to said starting solution to form a reacting solution; and

15 e) allowing said reacting solution to react for a predetermined reaction time under a predetermined controlled temperature to form a resulting product wherein said resulting product is  $\alpha$ -glycosyl stevioside; whereby said resulting product gives a percentage yield between 75 and 86.

2. The process, as recited in claim 1, wherein said  $\alpha$ -glucosyl sugar compound is selected from the group of starch, dextrin and cyclodextrin.

20 3. The process, as recited in claim 1, wherein said transferase is selected from the group of glucosyltransferase and cyclodextrin glucanotransferase.

4. The process, as recited in claim 2, wherein said transferase is selected from the group of glucosyltransferase and cyclodextrin glucanotransferase.

25 5. The process, as recited in claim 1, wherein said concentration of stevioside, said concentration of substrate, said DE value of said substrate, said transferase ratio, said

controlled temperature, said reaction time are in the range of 10 and 18%, 10 and 19%, 4 and 30, 0.06 and 0.25%, 40°C and 80°C, and 3 and 30 hours respectively.

6. The process, as recited in claim 5, wherein said alpha-glucosyl sugar compound is selected from the group of starch, dextrin and cyclodextrin.

5        7. The process, as recited in claim 6, wherein said transferase is selected from the group of glucosyltransferase and cyclodextrin glucanotransferase.

8. The process, as recited in claim 1, wherein said concentration of stevioside, said concentration of substrate, said DE value of substrate, said transferase ratio, said controlled temperature, said reaction time are in the range of 13 and 16%, 13 and 15%, 4  
10    and 20, 0.09 and 0.22%, 55°C and 80°C, and 9 and 18 hours respectively.

9. The process, as recited in claim 8, wherein said alpha-glucosyl sugar compound is selected from the group of starch, dextrin and cyclodextrin.

10. The process, as recited in claim 9, wherein said transferase is selected from the group of glucosyltransferase and cyclodextrin glucanotransferase.

15        11. The process, as recited in claim 1, wherein said concentration of stevioside, said concentration of substrate, said DE value of substrate, said transferase ratio, said controlled temperature, said reaction time are in the range of 13 and 16%, 13 and 15%, 4 and 20, 0.09 and 0.22%, 66°C and 78°C, and 10 and 18 hours respectively.

12. The process, as recited in claim 11, wherein said alpha-glucosyl sugar  
20    compound is selected from the group of starch, dextrin and cyclodextrin.

13. The process, as recited in claim 12, wherein said transferase is selected from the group of glucosyltransferase and cyclodextrin glucanotransferase.

14. The process, as recited in claim 1, wherein said concentration of stevioside, said concentration of substrate, said DE value of substrate, said transferase ratio, said  
25    controlled temperature, said reaction time are in the range of 12 and 14%, 11 and 19%, 6 and 20, 0.1 and 0.2%, 55°C and 80°C, and 9 and 18 hours respectively so as to give a percentage yield between 75 and 86.

15. The process, as recited in claim 14, wherein said alpha-glucosyl sugar compound is selected from the group of starch, dextrin and cyclodextrin.

16. The process, as recited in claim 15, wherein said transferase is selected from the group of glucosyltransferase and cyclodextrin glucanotransferase.

5        17. The process, as recited in claim 1, wherein said concentration of stevioside, said concentration of substrate, said DE value of substrate, said transferase ratio, said controlled temperature, said reaction time are 14%, 15%, 16, 0.18%, 66°C, and 18 hours respectively so as to give a percentage yield of 86.

10       18. The process, as recited in claim 4, wherein said concentration of stevioside, said concentration of substrate, said DE value of substrate, said transferase ratio, said controlled temperature, said reaction time are 14%, 15%, 16, 0.18%, 66°C, and 18 hours respectively so as to give a percentage yield of 86.

19. A process of improving the quality of taste of stevioside for mass production comprising the steps of:

15       a) providing an aqueous solution of stevioside having a predetermined concentration;

20       b) providing a predetermined substrate with a predetermined dextrose equivalent and a predetermined concentration, wherein the quantity of said stevioside and said substrate is defined as predetermined reactants and said substrate is a alpha-glucosyl sugar compound;

c) mixing said aqueous solution of stevioside and said substrate to form a starting solution;

d) adding a predetermined transferase in a predetermined quantity to said starting solution to form a reacting solution; and

25       e) allowing said reacting solution to react for a predetermined reaction time under a predetermined controlled temperature to form a resulting product wherein said resulting product is  $\alpha$ -glycosyl stevioside; wherein said alpha-glucosyl sugar compound is selected

from the group of starch, dextrin and cyclodextrin and said transferase is selected from the group of glucosyltransferase and cyclodextrin glucanotransferase whereby said resulting product gives a substantially high percentage yield for mass production.

20. The process, as recited in claim 19, wherein said concentration of stevioside,  
5 said concentration of substrate, said dextrose equivalent value of substrate, said transferase ratio, said controlled temperature, said reaction time are 14%, 15%, 16, 0.18%, 66°C, and 18 hours respectively such that said percentage yield is 86.